

CLAIMS

1. A one-piece surgical clip, comprising:  
a first jaw having a distal end and a proximal end;  
a second jaw opposed to said first jaw having a distal end and a proximal  
end;

5 a first arm operably attached to the proximal end of the first jaw to  
pressably open or close said first jaw; and  
a second arm operably attached to the proximal end of the second jaw to  
pressably open or close said second jaw,  
wherein said clip is constructed from a single wire.

2. The surgical clip of claim 1, wherein the first and second arms are  
resiliently pressed against each other in the closed position.

3. The surgical clip of claim 1, further comprising a tensioning device  
operably connected to the first jaw and the second jaw to bias the first and  
second jaws to a closed position.

4. The surgical clip of claim 3, wherein the tensioning device is a central  
coil having at least one turn.

5. The surgical clip of claim 1, wherein the tension, strength and holding characteristics of the tensioning device may be varied based on the number of turns of the central coil and the hardness or temper of the wire.

6. The surgical clip of claim 1, wherein the wire has a cross-section having an oval, circular, square, rectangular or any geometric shape.

7. The surgical clip of claim 1, wherein the wire is folded in one plane.

8. The surgical clip of claim 1, wherein the first and second jaws may be curved, shaped, bent or configured to provide access to a specific area of a procedure.

9. The surgical clip of claim 1, wherein at least one of the first arm and the second arm includes a hole or a ring-shaped proximal tip to further enhance grip.

10. The surgical clip of claim 9, wherein the hole or ring-shaped proximal tip is used to attach a tether or suture to provide easy tracking, retrieval and accounting of the clip.

11. The surgical clip of claim 1, wherein each of the first and second jaws includes an atraumatic distal end.

12. The surgical clip of claim 1, wherein the first and second jaws are serrated to provide improved traction.

13. The surgical clip of claim 1, further comprising a coating over the first and second jaws to provide improved traction and padding.

14. The surgical clip of claim 13, wherein the coating includes at least one of soft elastomer, Kraton, PVC, polyisoprene and the like.

15. The surgical clip of claim 13, wherein the first and second jaws are coated with one material and the rest of the clip is coated with another material.

16. The surgical clip of claim 1, further comprising a tool to reshape the first and second jaws to a custom configuration.

17. The surgical clip of claim 3, further comprising a traction rod sized and configured to fit into a lumen of the tensioning device to place the clip at a desired position or location during a procedure.

18. The surgical clip of claim 1, wherein the clip is used as an aneurysm clamp, a peripheral vascular clamp or as a neurological clamp.

19. The surgical clip of claim 1, wherein the clip is disposable.

20. The surgical clip of claim 1, wherein the clip is reusable.

21. The surgical clip of claim 1, wherein the wire is formed from stamping.

5        22. The surgical clip of claim 1, wherein the wire is formed from a pre-formed ribbon of metal.

23. The surgical clip of claim 1, wherein the wire is formed from a die-cut pre-form.

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24. The surgical clip of claim 1, wherein the wire is formed from at least one of a photo-chemically cut, an etched pre-form and a sheet of pre-formed ribbon.

15        25. The surgical clip of claim 1, wherein the wire is formed from a plurality of pre-forms generated on a single sheet.

26. A method of forming a one-piece surgical clip, comprising:

winding a single wire around a support member or mandrel at least one turn forming a central coil, a first extension and a second extension;

5        bending the first extension back on itself forming a first jaw and bending the second extension back on itself forming the second jaw; and

returning the first bent extension and the second bent extension to the central coil such that the first and second extensions extend rearward in a direction opposite to the direction of the first and second jaws to form a first  
10 handle portion and a second handle portion.

27. The method of claim 26, further comprising bending the proximal tips of the first and second handle portions to further enhance grip.

28. The method of claim 26, wherein each of the first and second bent extensions includes an atraumatic distal end.

29. The method of claim 26, wherein the returning first and second bent extensions are formed to rest upon the central coil.

30. The method of claim 26, wherein the first and second jaws may be curved, shaped, bent or configured to provide access to a specific area of a procedure.

31. The method of claim 26, further comprising coating the first and second jaws with at least one of an atraumatic and a traction-enhancing material.

32. The method of claim 26, wherein traction is separated from the force required to occlude a bodily tissue or vessel.

33. The method of claim 31, wherein the coating includes at least one of soft elastomer, Krayton, PVC, polyisoprene and the like.

34. The method of claim 26, further comprising coating the first and second jaws with a first traction-enhancing material and coating the rest of the clip with a second material.

35. The method of claim 26, further comprising placing disposable inserts over the first and second jaws to improve traction.

36. The method of claim 26, further comprising placing reusable inserts over the first and second jaws to improve traction.

37. The method of claim 26, wherein at least one of the first handle portion and the second handle portion includes a hole or a ring-shaped proximal tip to further enhance grip.

38. The method of claim 37, further comprising placing a tether or suture through one of the handle portions to provide easy tracking, retrieval and accounting of the clip.

39. The method of claim 26, wherein the process is automated.

40. The method of claim 26, wherein the wire has a cross-section having an oval, circular, square, rectangular or any geometric shape.

41. A one-piece surgical clip, comprising:

a first jaw having a distal end and a proximal end;

a second jaw opposed to said first jaw having a distal end and a proximal end;

5 a first arm integrally formed at the proximal end of the first jaw to pressably open or close said first jaw; and

a second arm integrally formed at the proximal end of the second jaw to pressably open or close said second jaw,

wherein said clip is constructed from a single wire

42. The surgical clip of claim 40, further comprising a tensioning device integrally formed with the first jaw and the second jaw to bias the first and second jaws to a closed position.